

M1A and M1V

NEW

The M1 series is a single phase and three-phase digital panel meter for reliable and accurate true-RMS measurement of electrical parameters (voltage, current) for industrial and commercial applications.



Application

- Commercial and industrial sub-metering
- High and medium voltage switchgear panels
- Power control centre (PCC) panels
- Motor control centre (MCC) panels
- LV distribution panels
- Control and relay panels
- Automation and monitoring systems

Parameters	M1A	M1V
Auxiliary power supply	80V to 300 V AC or DC	80V to 300 V AC or DC
Frequency	45 - 65Hz	45 - 65Hz
Burden	5VA	5VA
Installation category CAT III	200mA	200mA
Protection fuse		
Measurement accuracy	Current $\pm 1.0\%$ (M1A1,M1A3), $\pm 0.5\%$ (M1A3) ¹	Voltage $\pm 1.0\%$ (M1V1,M1V3), $\pm 0.5\%$ (M1V3)
Voltage measurement inputs		80-515V AC (L-L), 300V Max. AC L-N
Measurement category	CAT III	CAT III
Rated frequency [Hz]	45 - 65Hz	45 - 65Hz
Max. VT Primary [V]		999 Kv
Burden [VA]		0.2VA Max. per phase
Current measurement inputs	CT secondary 1A or 5A	
Measurement range	50mA - 6A	
Max. CT Primary [A]	99 kA.	
Burden [VA]	0.2VA Max. per phase	
User Interface Access to device	2 pushbuttons	2 pushbuttons
Display type	LED display	LED display
LED Digit height [mm]	10	10
Mechanical characteristics Overall dimensions [mm]	96 x 96 x 58 (52mm depth inside the switchboard)	96 x 96 x 58 (52mm depth inside the switchboard)
IP degree of protection (IEC 60529)	IP51	IP51
Weight [kg]	0,300	0,300
Climatic conditions operating temperature	-10°C to +60°C ²	-10°C to +60°C ²
Storage temperature	-25°C to +70°C	-25°C to +70°C
Relative humidity	5% to 95% non condensing	5% to 95% non condensing
Pollution degree	2	2
Altitude	Below 2000ms	Below 2000ms
Standards Electrical safety	IEC 61010-1	IEC 61010-1

¹ Accuracy class note for current: For input current below 250mA, additional.

² Accuracy class error for Temperature: Below 10°C, mean temperature coefficient for the meter is 0.15%/K.

M1A and M1V

Ordering codes

NEW



M1A

M1A is a digital ammeter for current measurement, providing the measurement of the single-phase or three-phase electrical parameters and allowing easy replacement of different analogue meters.

Communication protocol and interface	Order details Type code	Order code	Pack unit pc.	L.P.(₹)
-	M1A 1-1 Ammeter 1Ph (CI 1.0)	1SYG235145R4051 ■	1	1,500
-	M1A 3-1 Ammeter 3Ph (CI 1.0)	1SYG235135R4051 ■	1	2,300
-	M1A 3-05 Ammeter 3Ph (CI 0.5)	1SYG234905R4051 ■	1	2,700



M1V

M1V is a digital voltmeter for voltage (and Frequency) measurement, providing the measurement of the single-phase or three-phase Voltage as well as Frequency (for 3Ph Voltmeter) and allowing easy replacement of different analogue meters.

Communication protocol and interface	Order details Type code	Order code	Pack unit pc.	L.P.(₹)
-	M1V 1-1 Volt Meter 1Ph	1SYG233965R4051 ■	1	1,500
-	M1V 3-1 Volt Meter 3Ph	1SYG233955R4051 ■	1	2,300
-	M1V 3-05 Volt Meter 3Ph	1SYG233695R4051 ■	1	2,700

Coming soon*

M1M 11

M1M11 is a digital kWh meter for energy measurement, providing the measurement of the single-phase or three-phase energy consumption.

Order details Type code	Order code	Pack unit pc.	L.P.(₹)
M1M 11-1 Modbus kWh meter 1%	1SYG233685R4051	1	Upon request
M1M 11-05 Modbus kWh meter 0,5%	1SYG232395R4051	1	

* Availability from February 2022

Measurement devices **NEW**

M1M 10 and M1M 12

Intuitive visualization

Clear and simple reading of the measurement data for all 3 phases on the wide LED displays.

Compact design

Only 52mm inside the switchboard to ensure optimized logistics and reduced footprint in the panel



Electrical system monitoring

Complete electrical parameters measurement, from simple VAF (voltage, current, frequency) to power and energy monitoring

Easy to use

Simple front keypad to navigate in setup and menus.

Remote measurement

Availability of RS485 interface with the support of communication protocol Modbus RTU facilitating the communication and connection of the device with remote locations.

M1M 10 and M1M 12

Technical features

		M1M 10 M1M 12
Auxiliary power supply	Auxiliary Power Supply range	80V to 300 V AC or DC
	Frequency	50 - 60 Hz
	Burden	5VA Max
	Installation category	CAT III
	Protection fuse	200mA
Measurement accuracy	Voltage	±1,0%
	Current	±1,0%
	Active Power (M1M 12)	±1,0%
	Active Energy (M1M 12)	±1,0%
Voltage measurement inputs	Measurement range	[V] 80-515V AC (L-L), 300V Max. AC L-N
	Measurement category	CAT III
	Rated frequency	[Hz] 50 - 60Hz
	Max. VT Primary	[V] 999 Kv
	Burden	[VA] 0.2VA Max. per phase
Current measurement inputs	CT secondary	1A or 5A
	Measurement range	50mA - 6A ¹
	Max. CT Primary	[A] 99 kA,
	Burden	[VA] 0.2VA Max. per phase
User Interface	Access to device	2 pushbuttons
	Display type	LED display
	LED Digit height	[mm] 10
Communication protocol (M1M 12 Modbus)	RS-485	
	Protocol	Modbus RTU
	Communication interface	RS485 with optical isolation
	Baud rate	2400 bps to 19200 bps
	Parity number	Odd, Even, None
	Stop bit	1,2
	Address	1-247
Mechanical characteristics	Overall dimensions	[mm] 96 x 96 x 58 (52mm depth inside the switchboard)
	IP degree of protection (IEC 60529)	IP51
	Weight	[kg] 0,300
Climatic conditions	Operating temperature	-10°C to +60°C ²
	Storage temperature	-25°C to +70°C
	Relative humidity	5% to 95% non condensing
	Pollution degree	2
	Altitude	Below 2000ms
Standards	Electrical safety	IEC 61010-1

¹ Below 250mA, additional error of 0.1% of full scale.

² Below 10°C, mean temperature coefficient is 0.15%/K

M1M 10 and M1M 12

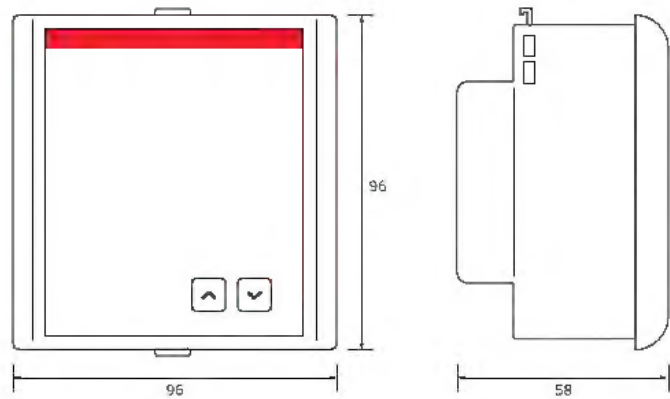
Technical features



		M1M 10	M1M 12
Measured parameter	TRMS Voltage	■	■
	TRMS Current	■	■
	Frequency	■	■
	Power Factor		■
	Active Power		■
	Active Energy		■
	On Hours	■	■
	Load Hours		■
Communication interface	Serial port		RS-485
	Protocol		Modbus RTU

Overall dimensions

All measurements in mm



M1M 10 and M1M 12

Ordering codes



M1M 10

M1M 10

M1M 10 is a VAF meter for basic electrical system monitoring, providing the measurement of the main single-phase and three-phase electrical parameters and allowing easy replacement of different analogue meters.

Communication protocol and interface	Bbn 8012542 EAN	Order details Type code	Order code	Pack unit pc.	L.P.(₹)
-	350811	M1M 10	1SYG235081R4051 ■	1	2,680



M1M 12

M1M 12

M1M 12 is a multi-function meter, providing what is needed to monitor the electrical system and allowing statistical metering of active energy consumption.

M1M 12 product range includes option with built-in communication protocol (Modbus RTU) through RS485 communication port, allowing easy integration with Modbus supervision systems.

Communication protocol and interface	Bbn 8012542 EAN	Order details Type code	Order code	Pack unit pc.	L.P.(₹)
-	075912	M1M 12	1SYG207591R4051 ■	1	8,630
Modbus RTU RS485	075813	M1M 12 Modbus	1SYG207581R4051 ■	1	9,560

M1M Power Meters

Introducing the new ABB dual source and power meters ranges M1M DS, M1M 20B and M1M 30B an easy solution for any standard application in buildings and industry.

M1M DS, M1M 20B and M1M 30B are the new ABB ranges of dual source and power meters, offering exactly what is needed to monitor the electrical system and analyze the power quality in a single device.

The new M1M power meters offer allows to easily and cost-effectively cover the main submetering and power quality monitoring requirements in commercial and industrial buildings, either small or mid/large-sized, e.g. inside power factor correction boards, motor control center or sub-distribution switchboards.

ABB's complete dual source, multifunction meters and network analyzers product line, now including

M1M and M4M ranges, are capable to cover all needs, from basic electrical parameters measurement to advanced power quality analysis.

ABB's power meters are simple to use, with a common and intuitive user experience from installation to operations, allowing to fully exploit the reliable, IEC-compliant measurements.

Thanks to their connectivity capabilities, M1M and M4M can get leverage on the integration in ABB scalable energy and asset management solutions to monitor, optimize and control the complete electrical system, such as System pro M compact® InSite and ABB Ability™ Energy and Asset Manager cloud-computing platform.



—
Commercial
Buildings



—
Industrial
Plants



—
Public
Buildings



—
Complete offer



—
Easy to use



—
Easy to install



—
Energy Efficiency

— Your benefits

For distributors

- Reduce selection time of the correct product thanks to reduced range complexity
- Manage a limited number of order codes from a single supplier
- Save space needed for internal stock
- Have the product on stock when needed and reduce delivery time

For panel builders

- 1 supplier only for all measurement products covering wide range of projects
- Increase competitiveness in projects
- Reduce time needed for product selection thanks to simple range composition
- Reduce time for installation and operations
- Minimum space requirements in the panel

M1M DS, 20B and 30B

Coming soon*

Ordering codes

M1M DS

M1M DS is a digital dual source meter along with power parameters for two source measurement for example EB/DG.

Order details Type code	Order code	Pack unit pc.	L.P.(₹)
M1M DS Dual source meter	1SYG232385R4051	1	Upon request
M1M DS Modbus Dual source meter	1SYG232375R4051	1	

M1M 20B

M1M 20 is a power meter including THD and import/export (4 quadrants) measurement for basic power quality analysis applications such as power factor management and local energy generation monitoring.

Order details Type code	Order code	Pack unit pc.	L.P.(₹)
M1M 20B-1 Modbus 1%	1SYG231445R4051	1	Upon request
M1M 20B-05 Modbus 0,5%	1SYG230355R4051	1	
M1M 20B-02 Modbus 0,2%	1SYG230295R4051	1	

M1M 30B

M1M 30 is a power meter providing complete features in terms of power quality analysis such as measurement up to 40th harmonic and internal memory for datalogging, allowing to target e.g. demand management applications.

Order details Type code	Order code	Pack unit pc.	L.P.(₹)
M1M 30B-05 Modbus	1SYG230185R4051	1	Upon request
M1M 30B-02 Modbus	1SYG229775R4051	1	

* Availability from February 2022

Measurement devices

M4M Network Analyzers



Full connectivity

Cloud-based power monitoring

Connectivity-based solutions increase awareness of resources and process behaviors: asset management can then be optimized through the control and monitoring of operations and costs.

M4M network analyzers ranges allow full connectivity and easy integration of submetering and power quality monitoring features, thanks to a complete set of communication protocols, matching high-accuracy standard requirements.

M4M exploits the scalability of the ABB solution, from stand-alone visualization and commissioning via HMI or EPiC mobile APP and desktop software, to monitoring, optimization and control of the complete electrical system via ABB Ability™.

At ABB we leverage internet of things' devices to drive digital transformation of buildings, by providing a scalable portfolio for energy and asset management.



Propose a single solution to optimize costs and energy needs thanks to M4M which is automatically integrated in ABB Ability™ EDCS cloud-computing platform, enabling real-time monitoring widgets, historical trend analysis and power quality reporting.



Propose projects compliant with energy efficiency regulations. High-accuracy network analyzers class 0,5 according to IEC 61557-12, connecting to the cloud complete set of electrical parameters and power quality KPIs: from THD to individual harmonics.



Rogowski coil acceptance to integrate measurement functionalities and power quality analysis in any existing installation, easily transmitted to the cloud also in brownfield projects.



**Scalable, fully connected,
unique ABB solution**



**Meet energy efficiency
requirements and
regulations**



**Revamping of any
existing installation**

Explore the new ranges **NEW**

M4M network analyzers are available in two different versions which ensure all power monitoring needs, from basic to more complete power quality analysis.



EQUIPPED WITH GRAPHIC COLOR DISPLAY AND 5 PUSHBUTTONS KEYBOARD, M4M 20 RANGE ALLOWS COMPLETE MONITORING AND BASIC POWER QUALITY ANALYSIS.



EQUIPPED WITH TOUCHSCREEN COLOR DISPLAY, M4M 30 RANGE ALLOWS COMPLETE POWER QUALITY ANALYSIS AND ENERGY EFFICIENCY EVALUATIONS.

Graphic color display

M4M 20 and M4M 30 are equipped with a graphic color display and common app-based menu for an intuitive visualization.

Bluetooth-enabled

All M4M network analyzers are equipped with Bluetooth module for smart commissioning via mobile app.

Full communication

A complete set of embedded communication protocols, including Modbus RTU, Modbus TCP/IP, Profibus DP-V0 and BACnet/IP

Input/Output

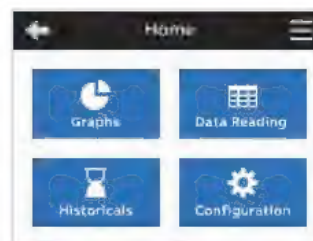
Control on the system thanks to I/O options including digital outputs, programmable I/O or programmable analogue outputs.

Datalogger

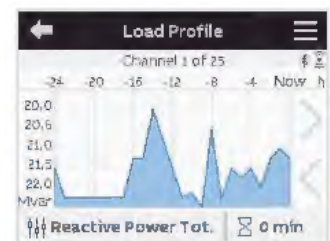
Data logging features are available, from complete notification logs to flash memory and RTC for 1-year data logging of trends.

Rogowski version

M4M Rogowski versions are compatible with ABB's R4M



01



02



03

01 M4M Homepage

02 Trending graphs of load profiles

03 R4M Rogowski coils

M4M 20 and M4M 30

Technical data



M4M 20



M4M 30

Real-time		
TRMS current	•	•
TRMS voltage	•	•
Frequency	•	•
Active, Reactive and Apparent Power	•	•
Power Factor	•	•
Operating timer, countdown timer	•	•
Energy		
Active, Reactive and Apparent Energy	•	•
4 quadrants Energy (Import/Export)	•	•
Tariffs	/	•
Power Quality		
THD (I, VLN, VLL)	•	•
Individual Harmonics	/	40th
Unbalances (I, VLN, VLL)	/	•
Neutral current	Calculated	Measured
Phasors (I, VLN)	/	•
Waveforms (I, VLN, VLL)	/	•
Data recording and logs		
Single alarms	25	25
Warnings, alarms and errors logs	•	•
Complex alarms with logics	/	4
Demand values (average)	Basic	Advanced
Min/Max Demand values	Basic	Advanced
Energy Trending logs	/	•
RTC	/	•
HMI	Graphic color	Graphic color touchscreen
Graphs visualization	Basic	Advanced
Notifications	•	•
Homepage and favourite page	•	•
Password protection	•	•
Connectivity		
Automatic integration in ABB Ability™ EDCS	•	•
Bluetooth Low Energy	•	•
Communication Protocols	Modbus RTU, Modbus TCP/IP, Profibus DP-V0, BACnet/IP	Modbus RTU, Modbus TCP/IP, Profibus DP-V0, BACnet/IP
RJ45 Daisy Chain (Ethernet version)	/	•

M4M 20 and M4M 30

Ordering codes



M4M 20

M4M 20 is ABB's network analyzer range that provides complete and accurate electrical parameters monitoring and basic power quality analysis.

Equipped with graphic color display for advanced visualization of the measured parameters and Bluetooth module for smart commissioning.

		Bbn	Order details		Pack	
Communication protocol	I/O	8012542 EAN	Type code	Order code	Unit pc.	L.P.(₹)
BLE	2 Digital out	511519	M4M 20	2CSG251151R4051	1	Upon request
BLE, Modbus RTU	2 Digital out	511410	M4M 20 Modbus	2CSG251141R4051	1	
BLE, Modbus TCP/IP	2 Digital out	044710	M4M 20 Ethernet	2CSG204471R4051	1	
BLE, Profibus DP-V0	2 Digital out	511311	M4M 20 Profibus	2CSG251131R4051	1	
BLE, BACnet/IP	2 Digital out	368311	M4M 20 Bacnet	2CSG236831R4051	1	
BLE, Modbus RTU	2 Progr. I/O, 2 Digital out, 2 Analogue out	511618	M4M 20 I/O	2CSG251161R4051	1	



M4M 20 - ROGOWSKI VERSION

M4M 20 is also available as compatible with ABB's R4M Rogowski coils for current measurement, increasing the flexibility of network analyzers offer and allowing retrofit in any existing installations.

M4M 20 Rogowski together with R4M Rogowski coils ensures the integration of basic power quality metering in any existing system with 0 downtime.

		Bbn	Order details		Pack	
Communication protocol	I/O	8012542 EAN	Type code	Order code	Unit pc.	L.P.(₹)
BLE, Modbus RTU	2 Digital Outputs	070818	M4M 20 Rogowski	2CSG207081R4051	1	Upon request

M4M 20 and M4M 30

Ordering codes



M4M 30

M4M 30 is ABB's network analyzer range that allows complete power quality analysis and energy efficiency evaluations.

Equipped with touchscreen color display for simplified access to the device and with Bluetooth module for smart commissioning.

		Bbn	Order details		Pack	
Communication protocol	I/O	8012542 EAN	Type code	Order code	Unit pc.	L.P.(₹)
BLE, Modbus RTU	4 Progr. I/O	747611	M4M 30 Modbus	2CSG274761R4051	1	Upon request
BLE, Modbus TCP/IP	4 Progr. I/O	746812	M4M 30 Ethernet	2CSG274681R4051	1	
BLE, Profibus DP-V0	4 Progr. I/O	367918	M4M 30 Profibus	2CSG236791R4051	1	
BLE, BACnet/IP	4 Progr. I/O	024514	M4M 30 Bacnet	2CSG202451R4051	1	
BLE, Modbus RTU	6 Progr. I/O, 2 Analogue out	024712	M4M 30 I/O	2CSG202471R4051	1	



M4M 30 - ROGOWSKI VERSION

M4M 30 is also available as compatible with ABB's R4M Rogowski coils for current measurement, increasing the flexibility of network analyzers and allowing retrofit in any existing installations.

M4M 30 Rogowski together with R4M coils ensure integration of complete PQ analysis in any existing system with 0 downtime.

		Bbn	Order details		Pack	
Communication protocol	I/O	8012542 EAN	Type code	Order code	Unit pc.	L.P.(₹)
BLE, Modbus RTU	4 Progr. I/O	024613	M4M 30 Rogowski	2CSG202461R4051	1	Upon request



R4M ROGOWSKI COILS

R4M Rogowski coils are flexible current transformer based on Rogowski technology, ideal to retrofit existing installations up to 12kA. Available in two different sizes (80mm or 200mm diameters), R4M coils are directly equipped with pre-wired removable terminals that perfectly fit M4M 20 Rogowski (3 Rogowski coil inputs) and M4M 30 Rogowski (4 Rogowski coil inputs), with no need for external integrators.

Bbn		Order details		Pack	L.P.(₹)
Diameter (mm)	8012542 EAN	Type code	Order code	unit pc.	
80	021605	R4M-80	2CSG202160R1101	1	
200	021506	R4M-200	2CSG202150R1101	1	